

**REMARKS**

1. Applicant has filed this Request for Continued Examination (RCE) responsive to the Office Action having a mail date of July 2, 2008. The claims submitted in this RCE are identical to the claims submitted in Applicant's last submission prior to this on April 29, 2008.
2. Applicant points out the Examiner failed to include the Office Action specific patent reference numbers for any of the references cited. In a phone conversation of this date with the Examiner, the Examiner has confirmed that the "Cheon" reference is US patent 5,731, 954; the Fox reference is US patent 5,285,347; and the Kang reference is US patent 6,142,222.
3. For the purpose of these Remarks and for simplicity, Applicant will confine its comments specifically to the independent claims in this application: Claims 186, 194, 198, 214, 259, 267, 271 and 287.

***Rejection of Claims 186 and 194  
under 35 USC §102(b) over Fox (US 5,285,347)***

4. Applicant repeats its remarks from the April 29, 2008 reply and re-submits that the crux for the Examiner's rejection of these claims is his statement regarding Fox "...and the cooling system has no component acting as a reservoir while the cooling system is in operation; ..." Applicant submits that this statement is not supportable and can not be used as the basis for rejecting these claims.
5. At the time of the filing of Fox, forced circulation liquid cooling systems consisted of 3 separate components (excluding tubing and other liquid pathways to transport the coolant): heat transfer units to absorb heat from the heat generating components; heat dissipaters to dissipate the heat transferred to the coolant in the heat transfer units; and reservoirs with pumps disposed therein for storing coolant and forcing circulation of the coolant through the liquid cooling system; hence the reference to these as 3-piece systems. Applicant's invention is the elimination of one of these separate

components (i.e. the reservoir) resulting in a 2-piece system. The advantages and benefits of eliminating the reservoir are numerous and have been explained previously by the Applicant.

6. The system described in Fox is not even a forced circulation liquid cooling system as is disclosed in Applicant's invention. It is what is commonly referred to as a "heat pipe" system. Specifically, the primary method used in heat pipe systems (and in Fox) to cool the heat-generating components is an air-cooled device (e.g. a heat sink) and the liquid coolant, when used, is employed to cool the air-cooled device.

7. In Fox, 3 pieces of the heat pipe system are depicted: a "hybrid heat sink 20 (or 120)," a "radiator 34 (or 134)" and a "pump 22 (or 122)." No where in the Fox drawings, specification or claims is there any description of the design or operation of the pump 22(or 122) or the radiator 34 (or 134) or reference to or even implication of the elimination of reservoir. In fact, there is barely any discussion of the pump 22(or 122) or the radiator 34 (or 134). This is because the focus of the disclosure and the claims in Fox are directed to the heat sinks and the operation of the "pump 22 (or 122)" and the "radiator 34 (or 134)" assumed to be known in the art.

8. Fox has chosen to refer to component 22 (or 122) as a "pump." The Examiner cannot infer from the "choice of descriptors" by Fox, that the reservoir in the liquid cooling system has been eliminated merely because there is no reference to it one way or the other in the reference. Additionally, Applicant submits that the "pump 22 (or 122)" in Fox must have a reservoir (for the liquid coolant) in order to operate.

9. Applicant's re-iterates its explanation of the benefits of eliminating the reservoir in a forced circulation, liquid cooling system. Prior to applicant's invention, forced circulation liquid cooling systems were deployed in 3 pieces: heat transfer units for transferring heat from the heat generating components to a coolant; heat exchangers for removing the heat from the coolant and cooling it; and a combination pump and reservoir for storing (extra coolant) and forcing circulation. Elimination of the reservoir has several benefits: the reduced cost of extra coolant (for the reservoir) and the extra

materials for the reservoir; a significant savings in space (required for the reservoir); and improved performance of the cooling system because of the higher circulation rates of the coolant through the electronic system without the drag of the extra coolant stored in the reservoir (both in normal operation and after shut down when convective can occur.

10. In Office Action dated July 2, 2008, the Examiner states “Applicant’s arguments have been fully considered and are not persuasive. Applicant’s argument that the reservoir must be present although it was not shown in the device disclosed by Fox et al because there is not convincing because there is no support for such a conclusion as inherently present in the system disclosed by Fox et al as a necessary element.”

10. Applicant responds that there is even less support for the Examiner’s position that, since Fox doesn’t disclose a reservoir, ergo Fox et al must not use one. Just because Fox has chosen not to describe at all how the pump works, the Examiner is not justified in concluding that there is no reservoir.

11. Fox et al describes an “alternative design” (for its invention) starting at column 7, line 25. Once again there is no discussion about the operation of pump 122. In Fig. 6, there is an element present representing the pump which suggests that the pump 122 stores coolant. In any event, there is nothing anywhere in Fox et al to suggest that what they call a pump is any different than the normal arrangement employed at the time this application was filed of having a 3<sup>rd</sup> piece in the cooling system consisting of a reservoir (for storing extra capacity of coolant) and a pump combined in a single piece.

12. In furtherance of its argument Applicant points out that no where in Fox is there any description of how the radiators 34 and 134 operate. However, from the drawings it is reasonable to infer that these radiators must have an input manifold (to distribute coolant throughout the radiator) and a output manifold (to collect the coolant from the radiator), as with Applicant’s input cavity and output cavity. Yet applying the Examiner’s logic to this, since Fox doesn’t mention these, they must not have one.

13. Applicant again submits that the Examiner's position that omission of reference to something must mean that something is not there is unfounded particularly, when the crux of the invention is the "elimination" that something. If Fox et al meant to eliminate the reservoir, then they should have and would have mentioned it. However, since the crux of the Fox invention has to do the heat transfer units and nothing to do with the rest of a forced circulation liquid cooling system, one cannot infer that just because something is not shown or discussed in the rest of the system not the subject of the invention, it has been eliminated.

14. Applicant submits that, in view of its remarks above in paragraphs 4-13, it has overcome the Examiner's rejection above of claims 186 and 194 and all dependent claims thereon and that these claims are in condition for allowance.

***Rejection of Claims 198 and 214 under 35 USC §103(a)  
over Fox in view of Kang (US 6142222)***

15. The Examiner's has repeated his rejection of these claims from the November 30, 2007 Office Action and again is relying his own unsupportable statement with respect to Fox "...and the cooling system has no component acting as a reservoir while the cooling system is in operation..."

16. For the same reasons given in paragraphs 4-13 above, Applicant submits that it has overcome the Examiner's rejection above of claims 198 and 214 and all dependent claims thereon and that these claims are in condition for allowance..

***Rejection of Claims 259, 267, 271 and 287  
under 35 USC §102(b) over Cheon (US 5,731,954)***

17. In response to the Examiner's comments in paragraph 8 of the November, 2007 Office Action (Allowable Subject Matter), Applicant added new claims 259-290 and cancelled claims 200-207. The

Cheon reference was listed in the “Notice of References Cited” attachment to the January 22, 2007 Office Action but has not been relied upon by the Examiner until the July 2, 2008.

18. Notwithstanding this, Applicant submits that the Examiner’s arguments with respect to this reference are incorrect. Specifically, “...the complete liquid cooling system has no component acting as a liquid coolant reservoir while the system is in operation considering that the element 48 structurally and functionally is similar to claimed output cavity 212 that is not considered as the reservoir; ...”

19. Cheon refers to element 48 as a reservoir. In Figure 2 of Cheon, it clearly depicted that this element is storing (i.e. the function and definition of a reservoir) coolant from the water level shown.

20. Applicant submits that there is nothing structurally similar at all between Cheon’s reservoir 48 and Applicant’s output cavity 212 and does not understand how the Examiner can make that statement.

21. Applicant’s claims 259 and 267 do not even recite an output cavity. They do recite, responsive to the Examiner’s aforementioned Notice of Allowable Subject matter, “...a forced circulation means disposed with the heat exchange unit...” and no component acting as a liquid coolant reservoir while the system is in operation.” Even if Applicant’s output cavity 212 and the Cheon’s reservoir 48 have structural and functional similarities, Cheon most definitely and also by its own admission has a reservoir.

22. For these reasons, Applicant submits that it has overcome the Examiner’s rejection above of claims 259, 267, 271 and 287 and all dependent claims thereon and that these claims are in condition for allowance.

App. No. 10/688,587  
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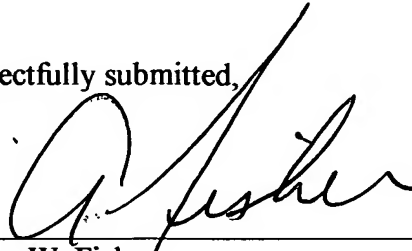
Docket No. QNX002

Should there be any further comments or issues; the Applicant respectfully invites contact of the undersigned at the telephone number indicated below or at *art.fisher@patentdominion.com*.

Date: \_\_\_\_\_

*9/29/2008*

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'A. Fisher', written over a horizontal line.

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